

A COMPARATOR CIRCUIT FOR DIFFERENTIAL SWING COMPARISON AND COMMON-MODE VOLTAGE COMPARISON

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ABSTRACT

5 A comparator circuit includes at least one transconductance stage that receives
two test voltages and two reference voltages. The transconductance stage produces two
test ^{currents} ~~current~~ that are proportional to the test voltages and two reference currents. A
switching circuit ~~that~~ is coupled to the transconductance stage. The switching circuit has
two output terminals that are coupled to a conventional comparator stage. The switching
10 circuit can combine the test currents with the reference currents to realize a differential
swing comparison mode and a common-mode comparison mode as required for testing
differential signals. Moreover, by disabling appropriate output signals from the at least
one transconductance stage, a single-ended comparison mode is realized. By using two
identical transconductance amplifiers, the non-linearity of the transconductance stage is
15 advantageously canceled out.

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